

REMARKS

Claims 1-12 are pending in the application, and are rejected. Claims 4 and 5 are herein canceled. Claims 1-3, 6, 8 and 11 are herein amended. New claim 13 is herein added. No new matter has been presented.

Abstract

The Examiner objects to the Abstract because it should be in narrative form and generally limited to a single paragraph. Applicants herein amend the Abstract of the specification.

Claim Objections

Claim 8 is objected to for being unclear. Among other amendments, Applicants herein add the word “to” to claim 8, which clarifies the claim.

Claim Rejections - 35 U.S.C. §112, second paragraph

Claim 6 is rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Claim 6 recites the limitation “inorganic layered compound (c)” in the second line of the claim. There is insufficient antecedent basis for this limitation in the claim. Applicants herein amend claim 6 to refer to “the inorganic layered dispersion (c)”.

Claim Rejections - 35 U.S.C. §102(b)

Claims 1 and 3 are rejected under 35 U.S.C. §102(b) as being anticipated by Gregorich et al. (Can. J. Soil Sci. 68:395-403).

Applicants herein amend claim 1 and 3 by importing the limitations from claim 5 to claim 1. Because claim 5 is not rejected under this section, Applicants submit that the rejection under §102(b) of claims 1 and 3 is overcome.

Claim Rejections - 35 U.S.C. §103(a)

Claims 1-11 are rejected under 35 U.S.C. §103(a) as being unpatentable over US 5,942,298 to Sakaya et al. in view of Gregorich et al. (Can. J. Soil Sci. 68:395-403).

The Examiner admits that while Sakaya et al. teaches the containers made from a dispersed layered inorganic compound composition, they are silent regarding the use of hydrogen peroxide in the dispersion process.

The Examiner notes that Gregorich et al. teaches dispersion of an inorganic layered composition, in this case clay and soil is dispersed using hydrogen peroxide in a dispersion medium (page 397, first column).

The Examiner concludes that one would have been motivated to combine the dispersion process of Gregorich et al. with the invention of Sakaya et al. because the films which have gas barrier properties against oxygen and organic solvent vapors and offer good resistance to scratches on the base of the film of Sakaya et al. are formed from a dispersion process that would

benefit from the complete dispersion with no evidence of redistribution or the formation of aggregates of the dispersion process of Gregorich et al. (Page 395, top of page).

Claim 12 is rejected under 35 U.S.C. §103(a) as being unpatentable over Sakaya et al. in view of Gregorich et al. in further view of US 6,569,533 to Uchida et al. The Examiner admits that Gregorich et al. and Sakaya et al. are silent regarding paper as a base layer. The Examiner notes that Sakaya et al. teach away from using products that are not transparent, however, if one did not need the film to be transparent Uchida et al. teach that paper could not be used as the base of the film, and that it is known in the art to use paper as the bases for films.

The Examiner concludes that one would have been motivated to modify the inventions of Gregorich et al. and Sakaya et al. with that of Uchida et al. because the gas barrier films of Gregorich et al. and Sakaya et al. could benefit from the barrier properties of Uchida et al. against water vapor and aromatics (Column 1, lines 5-10).

The Examiner asserts that the use of H₂O₂ leads to complete dispersion with no evidence of redistribution or the formation of aggregates in the dispersion process of Gregorich et al. The Examiner further notes that Gregorich et al. teaches that the H₂O₂ is effective in disrupting silt-sized aggregates which caused most of the increase in the clay-sized materials with increased ultrasonic energy.

In order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Second, there must be some apparent reason or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify

the reference or to combine reference teachings. Finally, there must be a reasonable expectation of success. (Manual of Patent Examining Procedure (MPEP) §2142). The suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based merely on Applicant's disclosure.

Applicants herein amend the claims to clarify the invention. Thereafter, Applicants respectfully disagree with the rejections because one skilled in the art would not have combined the cited references in the manner asserted to reach the present invention. Furthermore, each of the cited references fails to alone teach all of the claimed limitations.

Applicants note that the present invention of amended claim 1 is original claim 1 with the limitations of claim 5 added thereto. The present invention of amended claim 1 is a gas barrier coating composition as attached sheets.

The present invention of amended claim 1 is a gas barrier coating composition. The present invention has high gas barrier property and higher transparency based on its production. That is, in the present invention, when an inorganic layered compound dispersion prepared by dispersing the inorganic layered compound cleaved to a thin film form and almost to the size of primary particles by a peroxide is used, a gas barrier coating composition having higher gas barrier property and transparency is obtained.

Therefore, it is critically important to use the inorganic layered compound dispersion obtained by cleaving the inorganic layered compound with a peroxide for obtaining good gas barrier property and transparency in the gas barrier coating composition of amended claim 1.

Applicants submit that it is known that inorganic layered compounds are utilized in the fields of paints and functional coatings, and the inorganic layered compounds swell in a dispersion medium and may undergo cleavage without application of any external force. However, a relatively long period of time is required for them to be cleaved to a thin film form and the extent of cleavage is limited. So, the method step comprising applying, after admixing an inorganic layered compound with a dispersion medium, a mechanical force to the mixture using a high speed stirring apparatus or high pressure dispersing apparatus to promote cleavage has been used in the art.

However, there arise problems. When an attempt is made to cleave an inorganic layered compound by such a mechanical force, the cleavage will not proceed if the force is weak. On the other hand, when an excessive force is applied, breakage is caused prior to cleavage, leading to failure to obtain a thin film form of the inorganic compound.

The above problems are avoided in the present invention.

Applicants submit that Gregorich et al. does not disclose a gas barrier resin (d) and a gas barrier coating composition at all.

In the present invention, the hydrogen peroxide is added to the inorganic layered compound for cleaving the inorganic layered compound to a thin film form and almost to the size of primary particles as mentioned-above. But, Gregorich et al. discloses that hydrogen peroxide was added to the soil suspension not for cleaving the inorganic layered compound but for analyzing the organic matter in the soil. So, Gregorich et al. is absolutely different from the gas barrier coating composition of the present invention in the point of technical field. Gregorich et

al. does not teach or suggest using both inorganic layered compound and peroxide components for obtaining effects of the present invention as mentioned-above.

Sakaya et al. improves the gas barrier property by limiting the condition of the gravure coating. Sakaya et al. does not use the peroxide in the dispersion process. And as noted above, Gregorich et al. does not lead one skilled in the art to use hydrogen peroxide in such a product.

The coating composition of Sakaya et al. is a prior art of the present invention. Particularly, the example of Sakaya et al. is corresponding to the comparative example of the present invention. That is, Sakaya et al. has the problem similar to the present invention, but the means for solving the problem is completely different from the present invention. The prior methods not using the peroxide in the gas barrier coating composition, that is Sakaya et al., is different from the claimed invention, and such methods cannot adequately cleave the inorganic layered compound. To such a prior art, the present invention can highly cleave the inorganic layered compound by using the inorganic layered compound combination with the peroxide. As a result, the present invention can obtain the effects as mentioned-above.

Therefore, a person having ordinary skill in the art would not have combined the cited references as asserted to complete the present invention.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

Application No. 10/524,680
Attorney Docket No. 043210

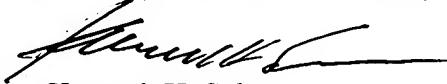
Amendment under 37 C.F.R. §1.111
Amendment filed June 24, 2008

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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